

In re: Michael J. Collins, Jr. et al.
Serial No. 10/605,021
Filed: September 2, 2003
Page 2

Amendments to the Claims

Please amend the claims as follows:

1. (Cancelled Herein)
2. (Cancelled Herein)
3. (Cancelled Herein)
4. (Previously Cancelled)
5. (Cancelled Herein)
6. (Previously Cancelled)
7. (Cancelled Herein)
8. (Cancelled Herein)
9. (Cancelled Herein)
10. (Cancelled Herein)
11. (Cancelled Herein)
12. (Cancelled Herein)

In re: Michael J. Collins, Jr. et al.
Serial No. 10/605,021
Filed: September 2, 2003
Page 3

13. (Cancelled Herein)

14. (Cancelled Herein)

15. (Cancelled Herein)

16. (Cancelled Herein)

17. (Cancelled Herein)

18. (Cancelled Herein)

19. (Original) A method of conducting microwave assisted chemical reactions using high viscosity liquids or heterogeneous mixtures of liquids and solids, the method comprising:

pumping a discrete portion of a composition selected from the group consisting of high viscosity liquids and heterogeneous mixtures of liquids and solids to a microwave-transparent pressure resistant reaction vessel at ambient pressures of between about atmospheric pressure and about 30 psi;

isolating the discrete portion in the pressure resistant vessel;

applying microwave radiation to the isolated discrete portion in the reaction vessel to initiate and maintain a chemical reaction at a pressure of at least about 175 psi while preventing the vessel from releasing higher-pressure gases generated by a chemical reaction in the vessel;

releasing pressure from the vessel following desired completion of the chemical reaction; and

In re: Michael J. Collins, Jr. et al.
Serial No. 10/605,021
Filed: September 2, 2003
Page 4

pumping the reaction products of the discrete portion from the vessel at ambient pressures of between about atmospheric pressure and about 30 psi following the pressure release.

20. (Original) A method according to Claim 19 comprising pumping a second discrete portion after the first has been pumped out and thereafter carrying out the steps of isolating the second portion, applying microwave radiation to the second portion, releasing pressure from the vessel, and pumping reaction products from the vessel.

21. (Original) A method according to Claim 19 comprising stirring the discrete portion in the reaction vessel during the step of applying microwave radiation.

22. (Original) A method according to Claim 19 wherein the step of applying microwave radiation comprises applying single mode radiation.

23. (Original) A method according to Claim 19 wherein the step of applying microwave radiation comprises applying dual mode radiation.

24. (Original) A method according to Claim 19 comprising maintaining the reaction vessel at a constant temperature for extended portions of a chemical reaction.

25. (Original) A method according to Claim 19 comprising measuring the temperature of the reaction vessel and adjusting the application of microwave radiation in response to the measured temperature.

In re: Michael J. Collins, Jr. et al.
Serial No. 10/605,021
Filed: September 2, 2003
Page 5

26. (Original) A method according to Claim 19 comprising measuring the temperature of the reaction vessel and cooling the reaction vessel in response to the measured temperature.

27. (Original) A method according to Claim 19 comprising maintaining the pressure in the reaction vessel at between about 175 and 250 psi.

28. (Original) A method according to Claim 20 comprising rinsing the reaction vessel with a solvent between the steps of pumping the reaction products and pumping the second discrete portion.

29. (Original) A method according to Claim 28 comprising driving the rinsing solvent with an inert gas.

30. (Original) A method according to Claim 19 comprising mixing the composition from components selected from the group consisting of solids, liquids, solutions, solid phase catalysts and solid-supported reagents prior to the step of pumping the composition to the reaction vessel.